



Objectives for Human Missions to NEOs

PLANETARY DEFENSE

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Magnitude of Findings



Theme	Number of Objectives
Demonstrate Deep Space Capabilities	
Scientific Research	
Planetary Defense	30
Other	

- Overarching observations

Deep Space Capabilities Theme: Key Observations



- Objectives
 - Objective 1
 - Objective 2
 - Objective 3
- Activities
 - Activity 1
 - Activity 2
 - Activity 3
- Target Characteristics
 - Characteristic 3
 - Characteristic 2
 - Characteristic 3

Scientific Research Theme: Key Observations



- Objectives
 - Objective 1
 - Objective 2
 - Objective 3
- Activities
 - Activity 1
 - Activity 2
 - Activity 3
- Target Characteristics
 - Characteristic 3
 - Characteristic 2
 - Characteristic 3

Planetary Defense Theme: Key Observations



- Objectives
 - Characterize properties of an NEO
 - Determine effectiveness of different deflection techniques
 - Examine various surface attachment techniques
 - Verification of remote characterization (i.e., learn ground truth)
 - Sample return
 - Simulate a multi-national planetary defense campaign
 - Planning operation and coordination of large deep space missions
 - Public buy-in for planetary defense
 - Involve international community
 - Verify autonomous proximity operations
- Activities
 - Collect sample returns
 - Observe and examine result of various deflection techniques
 - Test terminal phase guidance and control
 - Operate avatars to explore parts of the NEO
 - Implanting seismic sensors and stimulators
 - Measure and examine the NEO environment
 - Drilling to determine characteristics
 - Observe response to laser and other focus techniques
- Target Characteristics
 - Survey to get complete target selection catalog
 - Targets that are potential impact hazards (i.e., smaller objects)
 - Need queue of targets over course of several years
 - Choose targets with fairly simple characteristics (i.e., shapes, etc.)
 - More challenging dynamics for follow on mission (ex., longer duration requires S.E.P. which enables greater target selection)



Backup

Parking Lot



- Optional chart

Possible Breakout Discussions for Tomorrow



- Optional Chart